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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/484,259	01/18/2000	David Coates	MERCK1883-C1	9483
23599	7590	07/15/2003		EXAMINER
MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201			CHOWDHURY, TARIFUR RASHID	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 07/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application N .</b>	<b>Applicant(s)</b>
	09/484,259	COATES ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Tarifur R Chowdhury	2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 02 May 2003.

2a) This action is **FINAL**.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-4,9-13,15-18 and 20-40 is/are pending in the application.

4a) Of the above claim(s) 11-13,16-18,21-29,36,39 and 40 is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-4,9,10,15,20,30-35 and 37 is/are rejected.

7) Claim(s) 38 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.

4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 11, 16, 36, 39 and 40 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 21.

### ***Status of the claims***

2. Currently, claims 1-4, 9-13, 15-18 and 20-40 are pending. Among them claims 11-13, 16-18, 21-29, 36, 39 and 40 are withdrawn from consideration and claims 1-4, 9, 10, 15, 20, 30-35, 37 and 38 are examined on the merits.

### ***Claim Objections***

3. Claim 30 is objected to because of the following informalities: In claim 30, line 2, "hemitropic" should be changed to –homeotropic--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**5. Claims 1, 4, 9, 10, 15, 30, 33, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Krueger et al., (Krueger), USPAT 4,112,157.**

6. Krueger discloses in the abstract, a liquid crystal film or layer with homeotropic alignment, wherein the homeotropic alignment is achieved by an aligning layer on a substrate, and wherein the aligning layer is a smooth  $\text{Al}_2\text{O}_3$ , layer.

Accordingly, claims 1, 15 and 30 are anticipated.

Per claims 4 and 33, the substrate being subjected to corona discharge recitation is a product by process limitation. Regarding product by process limitations, see MPEP 2113.

Per claims 9 and 34, since the method of manufacturing the device is merely a list of forming each component and each component must be formed to make the device, the method of manufacturing would be inherent to the device.

Per claims 10 and 35, the claims add no new positively recited limitations.

**7. Claims 1, 4, 9, 10, 15, 30, 33, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Bahadur (LIQUID CRYSTALS APPLICATIONS AND USES, vol. III, pgs 1-36).**

8. Per claims 1, 15 and 30, Bahadur discloses a liquid crystal film or layer with homeotropic alignment (see Fig. 5.13c) characterized that the homeotropic alignment is achieved by an aligning layer on a substrate (see Fig. 5.13c) and the aligning layer is an inorganic layer (the aligning layer is  $\text{SiO}$  or  $\text{Al}$  or  $\text{Al}_2\text{O}_3$ , see Fig. 5.13 description and table 5.3).

Per claims 4 and 33, the substrate being subjected to corona discharge

recitation is a product by process limitation. Regarding product by process limitations, see MPEP 2113.

Per claims 9 and 34, since the method of manufacturing the device is merely a list of forming each component and each component must be formed to make the device, the method of manufacturing would be inherent to the device.

Per claims 10 and 35, the claims add no new positively recited limitations.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. **Claims 2, 3, 20, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krueger or Bahadur as applied to claims 1, 4, 9, 10, 15, 30, 33, 34 and 35 above.**

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12. Krueger and Bahadur disclose the claimed invention, as described above, except for the substrate formed of polymeric or plastic material. However, it is well known to incorporate plastic substrates in liquid crystal displays. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate a plastic substrate in the liquid crystal alignment film of Bahadur or Krueger since it is well known for the benefit of increase display flexibility.

13. **Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krueger or Bahadur as applied to claim 30 above and in view of Etzbach et al., (Etzbach), USPAT 5,780,629.**

14. Krueger or Bahadur do not explicitly disclose that the layer comprising one or more polymerizable mesogenic compounds.

Etzbach discloses polymerizable mesogenic compounds. He also discloses that using polymerizable mesogenic compounds for forming a layer is advantageous since it can be incorporated in a stable manner in any desired concentration without diffusing out of the phase or crystallizing (col. 1, lines 56-61)

Etzbach is evidence that ordinary workers in the art would find a reason, suggestion or motivation to form layer that comprises one or polymerizable mesogenic compounds.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to form the liquid crystal film of Krueger or Bahadur from a layer comprising one or more polymerizable mesogenic compounds so that it can be

incorporated in a stable manner in any desired concentration without diffusing out of the phase or crystallizing, as per the teachings of Etzbach.

Accordingly, claim 37 would have been obvious.

***Allowable Subject Matter***

15. Claim 38 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

16. Applicant's arguments filed on 12/30/2002 have been fully considered but they are not persuasive.

In response to applicant's argument regarding Krueger and Bahadur, it is respectfully pointed out to applicant that, Applicant has not recited any limitations that would comprise the characteristics/properties of smoothness, for example "degree of smoothness". Furthermore, typically the alignment layers are smooth unless disclosed otherwise.

In response to applicant's argument that Krueger does not illustrate the preparation of orientation layers using aluminum oxide, it is respectfully pointed out to applicant that since Krueger mentions the use of aluminum oxide as possible orientation layers (according to applicant as well), whether Krueger uses MgF<sub>2</sub> as orientation layers in one of the example or any other material is irrelevant and accordingly does anticipate the claimed limitations.

Further, in response to applicant's argument regarding the advantage of using a smooth alignment layer is irrelevant since no such limitations is in the claim.

In response to applicant's argument regarding claim 4, it is respectfully pointed out to applicant that as mentioned above the limitation is considered as "product by process" limitation. In spite of the fact that a product-by-process claim may recite only process limitations, it is the product, which is covered by the claim and not the recited process. Further, patentability of a claim to a product does not rest merely on a difference in the method by which the product is made. Rather, it the product itself which must be new and unobvious.

Accordingly, all the rejections were proper and thus maintained.

In response to applicant's request to provide evidence which suggests that the use of plastic substrates would have been obvious, the examiner is citing Yaniv, USPAT 5,281,450 which discloses that substrates may be formed of from any substantially transparent materials such as clear plastic or other polymeric material which may be either rigid or flexible wherein considerations such as hardness and optical clarity are of paramount importance (col. 4, lines 47-55).

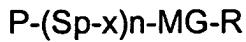
Applicant's argument regarding claims 11 and 16 is moot due to the withdrawn of the claims.

### ***Conclusion***

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) USPAT 6,379,758, assigned to the common assignee as in the instant

invention is related to a liquid crystal display device wherein polymerizable functional group are compounds of formula:



Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (703) 308-4115. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7005 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

July 1, 2003



T. Chowdhury  
Primary Examiner  
Technology Center 2800